



Docket No. 96700/596

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants : Jan Geliebter, George J. Christ, Arnold Melman, and  
Jamil Rehman  
Appln. No. : 09/531,969  
Filed : March 21, 2000  
For : GENE THERAPY FOR REGULATING SMOOTH  
MUSCLE TONE  
Art Unit : 1632  
Examiner : Peter Paras, Jr.

**Declaration of Drs. George J. Christ and Arnold Melman under 37 C.F.R. §1.132**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

We, George J. Christ and Arnold Melman, hereby declare as follows:

1. We are each a co-inventor of the subject matter claimed in U.S. Patent Application No. 09/531,969.
2. George J. Christ is currently a Professor in the Department of Urology and the Department of Physiology & Biophysics at Albert Einstein College of Medicine, Bronx, New York. He holds a doctorate degree (Ph.D.).

Arnold Melman is currently Professor and Chair of the Department of Urology at Albert Einstein College of Medicine, Bronx, New York. He holds a medical doctorate degree (M.D.).

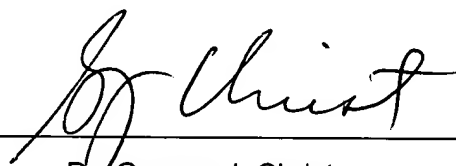
3. We are familiar with the examination proceedings in this application. We understand that the broadest pending claims, which are directed to the use of potassium channel proteins for enhancing relaxation of penile smooth muscle, are currently being rejected, primarily because the sentence spanning pages 27-28 of the application has been interpreted as limiting the claimed invention to the use of maxi-K and  $K_{ATP}$ .
4. The present application was filed as a continuation-in-part of U.S. Patent Application Nos. 08/799,144 and 09/135,849, to pursue claims directed to methods for regulating smooth muscle tone, preferably corporal smooth muscle tone, by introducing an exogenous DNA sequence encoding a protein involved in the regulation of smooth muscle, such as a potassium channel protein. The application provides two specific examples for regulating corporal smooth muscle tone. The first example uses the potassium channel subtype maxi-K (see Example on pages 39-51, 57-58 and 62-71), while the second example uses the potassium channel subtype  $K_{ATP}$  (see Example on page 51-52 and 72). As of the filing date of the application, the inventors considered their invention to include the use of a nucleic acid encoding an exogenous potassium channel generally for regulating corporal smooth muscle tone, and the use of nucleic acid encoding exogenous potassium channel subtypes maxi-K and  $K_{ATP}$  were provided as specific examples.
5. The sentence spanning pages 27-28 of the application states that “[d]espite the plethora of known  $K^+$ -channel subtypes, experimental and clinical data in human corporal smooth muscle provide evidence for the presence and physiological relevance of only two: (1) the metabolically-gated  $K^+$  channel (*i.e.*,  $K_{ATP}$ ), and (2) the large-conductance, calcium-sensitive  $K^+$  channel (*i.e.*, the  $K_{Ca}$  or maxi-K channel) (Dorschner, *et al.*, *Mol. Pharmacol.*, 55(6):1060-66, 1999; Lee, *et al.*, *Int. J. Impotence Res.*, 11:179-88, 1999; and Benevides, *et al.*, *J. Urol.*, 161:212 (Abstract), 1999.” (Emphasis added). This sentence was meant to characterize the state of the art, and more specifically, the physiological importance of endogenous maxi-K and  $K_{ATP}$ , based on pre-existing experimental and clinical data. This sentence was not meant to limit the invention, which relies on the use

of nucleic acid encoding exogenous potassium channels to regulate corporal smooth muscle tone. Again, maxi-K and K<sub>ATP</sub> are provided in the application as examples of exogenous potassium channels that can be used to regulate corporal smooth muscle tone.

6. We hereby declare that all statements made herein and of our knowledge are true and that all statements made on information and belief are believed to be true; and we further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: \_\_\_\_\_

4/15/04



Dr. George J. Christ

Dated: \_\_\_\_\_

4/15/04



Dr. Arnold Melman